UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,679	04/13/2006	Efraim Garti	27354U	4615

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THE NATH LAW GROUP
112 South West Street
Alexandria, VA 22314

EXAMINER
FIGUEROA, JAIME

ART UNIT	PAPER NUMBER
3664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/575,679	GARTI, EFRAIM
	Examiner	Art Unit	
	Jaime Figueroa	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2010*.

2a)☒ This action is **FINAL**.　　　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *68-93* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *68-93* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Applicant's arguments, see pages 9-20, filed 02/12/2010, with respect to the

rejection(s) of claim(s) 68 - 70, 72 - 81 and 92 under 35 U.S.C. 102(e), and claims 71,

88 - 91 rejected under 35 U.S.C. 103(a) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a

new ground(s) of rejection is made in view of Porat (US 7,089,876).

-The amended claims 82-87 and their previously indication of allowability have

been withdrawn in light of the new ground of rejection.

-The rejection of claims 68 - 93 under 35U.S.C. 112, second paragraph has been

withdrawn in light of the new amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 68-70, 72-81 are rejected under 35 U.S.C. 102(e) as anticipated by or,

in the alternative, under 35 U.S.C. 103(a) as obvious over Porat (US 7,089,876).

As per claim 68, Porat teaches *a cleaning robot configured to move in a swimming pool*

in accordance with commands from a main controller therein (see col. 2, line 33)*, the robot*

when in use being free of any cables connected to an external power supply (see fig. 1), *and*

including:

a body unit (see fig. 1, element 100) *with a battery power pack* (see fig. 1, element 102),

configured to move along the floor and/or walls of the pool (see fig. 1, element 2);

a tail unit (see fig. 1, element 10) *comprising a head portion configured to float on the*

surface of the pool (see figures 1, 2, & 4, element 10) *while the body unit* (see fig. 1, element

100) *is on the floor of the pool* (see fig. 1), *the head portion comprising electrical connectors*

represented by at least # 50/52/54 (see figures 1, 2, & 4) *designed for power input/output to*

facilitate charging batteries or battery in the battery power pack (see figures 1, 2, & 4) *by an*

external charger 4 (see fig. 2); *and*

a tethering cable 90 attached at least in use (see fig. 1), *to the body unit* (see fig. 1), *said*

the tethering cable being of sufficient length to allow the float of the head portion to float on the

surface of the pool while the body unit is on the floor of the pool (see fig. 1).

As per claim 69, Porat teaches *the cleaning robot wherein the head portion is configured*

to submerge below the water surface upon encountering an obstacle (inherently the wall has

been considered as obstacles).

As per claim 70, Porat teaches *the cleaning robot wherein the head portion is of a*

geometry which minimizes the likelihood of entanglement thereof with obstacles (see Fig. 1).

As per to claim 72, Porat teaches *the cleaning robot wherein the head portion comprises*

a float user interface, and is designed such that the float user interface is disposed at or near the

surface of the pool (see fig. 1, element 10)*, when the tail unit is in its working position* (see fig.

1, element 10).

As per claim 73, Porat teaches *the cleaning robot wherein said tail unit further*

comprises a tail unit controller (see fig. 1, element 3) *in communication with the main controller*

(see col. 4, line 64 – to – col. 5, line 7).

As per claim 74, Porat teaches *the cleaning robot wherein the float user interface is*

configured to receive user input (see col. 7, lines 20-22).

As per claim 75, Porat teaches *the cleaning robot wherein said tail unit* (see fig. 1,

element 10) *further comprises at least one data presentation device* (see fig. 4, element 34).

As per claim 76, Porat teaches *the cleaning robot that further comprising an external*

battery charger, which is connectable to the tail unit (see fig. 1, element 10) *for charging at least*

one battery in said battery power pack in the body unit of the robot (see fig. 1, elements 102 and

100).

Examiner would like to note that it is at least obvious if not inherent (see figures

1, 2, & 4) that the battery from the robot on the bottom of the pool could have been

charged by external power supply 4 via cable 92 and then cable 90. Notice the term

power input/output for the electrical ports on both the robot and the floating platform.

This means that the ports could be configured to provide either power input or power

output, to and from the device. Thus, it is clear that power input from an external source

could be routed to the robot on the bottom of the pool via floating platform 10.

As per claim 77, Porat teaches *the cleaning robot wherein the charger is configured to communicate with the tail unit via a cable* (see fig. 1, element 90), *and wherein another cable is used for connecting the tail unit* (see fig. 1, element 94) *with said battery power pack* (see fig. 1, element 10).

Examiner would like to note that since cable 90 is an input / output cable and platform 10 also has input /output connections via 50 / 52 / 54, it is obvious if not inherent (see figures 1, 2, and 4) that the battery on the bottom of the pool could be recharged from external power supply 4 via platform 10 (col. 5, line 64 to col. 6, line 2).

As per claim 78, Porat teaches *the cleaning robot wherein the charger comprises at least one charger-side data presentation units* (see fig. 4, particularly element 34).

As per claims 79 and 80, Porat teaches *the cleaning robot including a memory configured to store a certain orientation of the robot* (see fig. 4, element 34, wherein the display has been considered has having memory for storing the robot's motion being considered known, therefore it has not patentable weight), *said controller being configured to provide the robot with a command to align its orientation in accordance with the stored orientation and said orientation is defined by the robot's initial orientation* (see col. 4, lines 1-19).

As per claim 81, Porat teaches *the cleaning robot that further comprising a detector for detecting a wall when impacted by the robot, wherein the alignment of the robot's orientation is performed after at least one wall detection* (see fig. 1, wherein the pool contains multiple walls).

Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) in view of Hadari (US 2004/0260428).

As per claim 82, Porat et al. teaches *a cleaning robot that further comprising an electro-mechanical drive means (see Fig. 6, elements 20 and 34).*

Porat does not specifically teach *said first controller being adapted to detect the current through the drive means, whereby when the current exceeds a threshold, the controller assumes a wall impact to have occurred.*

Hadari teaches a pool cleaning apparatus *having a controller being adapted to detect the current through the drive means, whereby when the current exceeds a threshold, the controller assumes a wall impact to have occurred (see Fig. 2, [0014 and 0015].*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat, with the robot type of Hadari, because this modification would have introduced current monitoring through drive system, into Porat's teaching, thereby improving the effectiveness and maneuverability of a robot for cleaning swimming pools. The modification provides Porat with means for detecting wall obstruction for cleaning robot.

Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) / Hadari (US 2004/0260428) in view of Taninaga et al. (US 6,021,361).

As per claim 83, Porat / Hadari teach as discussed in claim 82, but do not specifically

teach *a cleaning robot wherein the threshold is determined by multiplying an average of the*

current passing through the drive means during one or more traversing of the pool floor by a

constant.

Taninaga et al. teaches a robot control system *wherein the threshold is determined by*

multiplying an average of the current passing through the drive means by a constant (see at least

fig. 1 -3), (see at least col.5, line 46 to col. 6, line 48).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the robot type of Porat / Hadari, with the robot type of

Taninaga et al., because this modification would have introduced threshold value for

average current, into Porat / Hadari teaching, thereby improving the control of the speed

of the robot according to the average current detected during different cycles of the

operations of the robot.

Claim 84 - 87 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Porat (US 7,089,876) ("Porat' 876") in view of Porat et al. (US 6,842,931)

("Porat et al.'931").

As per claims 84 - 86, Porat' 876 teach as discussed in claim 80, but does not

specifically teach *a cleaning robot wherein the controller is adapted to allow the robot to*

perform a straight lap and a subsequent stepped lap, each between two wall detections, both laps

comprising said alignment, the stepped lap also including rotation of the robot through a

predetermined angle relative to its orientation during the straight lap, whereby the robot is

adapted to move along two known mutually angled directions independently of the shape of the

walls of the swimming pool; wherein said predetermined angle is 90 degrees; and wherein

during the stepped lap, the robot moves for a period constituting a predetermined portion of the

duration of the preceding straight lap, said portion being increased after a predetermined

number of wall detections.

Porat et al.'931 teaches *the cleaning robot wherein the controller is adapted to allow the*

robot to perform a straight lap and a subsequent stepped lap, each between two wall detections,

both laps comprising said alignment (see col. 7, lines 48-55, wherein overlap has been

considered as alignment), *the stepped lap also including rotation of the robot through a*

predetermined angle relative to its orientation during the straight lap (see Fig. 5), *whereby the*

robot is adapted to move along two known mutually angled directions independently of the shape

of the walls of the swimming pool; wherein said predetermined angle is 90 degrees (see col. 7,

lines 48-55, wherein 90° has been considered as known angle); *and wherein during the stepped*

lap, the robot moves for a period constituting a predetermined portion of the duration of the

preceding straight lap (see Fig. 5), *said portion being increased after a predetermined number of*

wall detections (see Fig. 92).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the robot type of Porat' 876, with the robot type of Porat

et al.' 931, because this modification would have introduced a novel algorithm for

scanning pattern, into Porat' 876 teaching, thereby maximize the capability of the

robotic cleaner to cover the entire bottom surface of the pool to be cleaned, and programmed to direct the cleaner in a particularly efficient pattern of movements.

As per claim 87, Porat' 876 teach as discussed in claim 68. but does not specifically teach, *wherein the robot is preprogrammed for performing a plurality of cleaning modes, of which **at least two** are selected from a group comprising: (a) the robot scanning the floor surface of the pool, and ascending a sidewall at predetermined time intervals* (see abstract); *(b) the robot having a decreased speed and an increased suction; and (c) the robot executing a cycle comprising ascending a sidewall to the waterline, cleaning the waterline for a predetermined amount of time in a first direction with relation to the pool, descending the sidewall to the floor, moving along the sidewall a predetermined distance in a second direction which is opposite the first direction, ascending the sidewall, and continuing cleaning in the first direction.*

Porat et al.' 931 teaches, wherein the robot is preprogrammed for performing a plurality of cleaning modes (see Fig. 1), *of which **at least two** are selected from a group comprising: **(a)** the robot scanning the floor surface of the pool, and ascending a sidewall at predetermined time intervals* (see abstract); *(b) the robot having a decreased speed and an increased suction; and **(c)** the robot executing a cycle comprising ascending a sidewall to the waterline, cleaning the waterline for a predetermined amount of time in a first direction with relation to the pool, descending the sidewall to the floor* (see col. 1, lines 43-49), *moving along the sidewall a predetermined distance in a second direction which is opposite the first direction, ascending the sidewall, and continuing cleaning in the first direction* (see Fig. 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat' 876, with the robot type of Porat et al.' 931, because this modification would have introduced a novel algorithm for scanning pattern, into Porat' 876 teaching, thereby maximize the capability of the robotic cleaner to cover the entire bottom surface of the pool to be cleaned, and programmed to direct the cleaner in a particularly efficient pattern of movements.

Claims 88 - 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) in view of Abramson et al. (US 2003/0120389 A1).

As per claim 88, Porat teaches *a cleaning robot configured to move in a swimming pool along.* Porat does not specifically teach *two scanning directions obtained by adjusting the orientation of the robot in a predetermined way relative to a reference orientation thereof, said scanning directions having a predetermined angle therebetween, independently of the swimming pool's shape.*

Abramson et al. teach a robotic vacuum cleaner having (see abs. and section [0002]) *two scanning directions obtained by adjusting the orientation of the robot in a predetermined way relative to a reference orientation thereof* (see sections [0052, 0139 and 0141]), *said scanning directions having a predetermined angle therebetween* (see section [0118]), *independently of the swimming pool's shape* (see section [0098]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat, with the robot type of Abramson et al., because this modification would have introduced scanning direction into Porat's

teaching, thereby improving the efficiency and the reliability of the cordless pool cleaning robot.

As per claim 89, Abramson et al. teaches in combination with Porat *the cleaning robot including a memory configured to store the orientation of the robot, and a controller being configured to provide the robot with a command to align its orientation in accordance with the stored orientation* (see fig. 1 and section [0139]).

As per claim 90, Abramson et al. teaches in combination with Porat *the cleaning robot wherein said orientation is defined by the robot's initial orientation* (see section 0098).

As per claim 91, Abramson et al. teaches in combination with Porat *the cleaning robot wherein said predetermined angle is 90 degrees* (see section [0116]).

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) in view of Thrum et al. ("Probabilistic Algorithms and the Interactive Museum Tour-Guide Robot Minerva"- July 2000).

As per claim 71, Porat teaches essential feature substantially as claimed, but does not specifically teach the *robot being configured to stop at a predetermined location when a predetermined number of wall encounters occur after the battery voltage drops below a predetermined amount.*

Thrum et al. teaches a *robot being configured to stop at a predetermined location when a predetermined number of wall encounters occur after the battery voltage drops below a predetermined amount* (see page 20, section 5.3 paragraph 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat, with the robot type of Thrum et al., because this modification would have introduced battery monitoring system into Porat's, so that the robot can return to the charger, thereby improving the efficiency and the reliability of the cordless pool cleaning robot.

Claims 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) in view of Young et al. (US 7,144,057).

As per claims 92 and 93, Porat teaches *a cleaning robot configured to move in a swimming pool in accordance with commands from a main controller therein* (see col. 2, line 33), *the robot when in use being free of any cables connected to an external power supply* (see fig. 1), *and including:*

a body unit (see fig. 1, element 100) *with a battery power pack* (see fig. 1, element 102), *configured to move along the floor and/or walls of the pool* (see fig. 1, element 2);

a tail unit (see fig. 1, element 10) *comprising a head portion configured to float on the surface of the pool* (see figures 1, 2, & 4, element 10) *while the body unit* (see fig. 1, element 100) *is on the floor of the pool* (see fig. 1), *the head portion comprising electrical connectors represented by at least # 50/52/54* (see figures 1, 2, & 4) *designed for power input/output to facilitate charging batteries or battery in the battery power pack* (see figures 1, 2, & 4) *by an external charger 4* (see fig. 2); *and*

a tethering cable 90 attached at least in use (see fig. 1), *to the body unit* (see fig. 1), *said*

the tethering cable being of sufficient length to allow the float of the head portion to float on the

surface of the pool while the body unit is on the floor of the pool (see fig. 1); *a means for*

detecting its orientation in relation to a fixed direction (see col. 4, lines 30-34).

Porat does not specifically teach *the robot comprising a means for detecting its*

orientation in relation to a fixed direction; and *wherein the means is a digital compass*

integrated onto the controller.

Young et al. teaches substantially *a cleaning robot comprising a means for detecting its*

orientation in relation to a fixed direction (robot having a GPS sensor and a digital compass, see

fig. 1: plates 6a – 6b), (col. 2, line 63 to col. 3, line 9); and *wherein the means is a digital*

compass integrated onto the controller (see col. 3, lines 2-5).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the cleaning robot type of Porat, with the digital compass

type of Young et al., because this modification would have introduced the digital

compass Porat's, so that the GPS sensor can communicate with the digital compass,

thereby improving the efficiency and the reliability of the cordless pool cleaning robot.

Response to Arguments

In the Applicant's arguments filed on February 12, 2010, with respect to the

rejections of claims 68 - 93 under 35 U.S.C. 102(e) and 103(a) as being unpatentable

over Porat (US 7,089,876) have been fully considered and respectfully acknowledged.

Applicant argued, by citing column 3, lines 46-53), that the floating head portion

10 of Porat is designed to receive power from the cleaning robot 100 located on the

bottom of the pool. Applicant argued that robot 100 and its attached rechargeable

battery 103 cannot be charged by an external power source coming from the float

platform 10. These arguments are not persuasive since Applicant has purposely

chosen to ignore the term power "input" from the excerpt. The term power input means

that the robot battery 102 could be charged by an incoming electrical source via

connector 103 and cable 90 (Figure 1). Couple with Porat teaching from column 5, lines

14 to 20 "*Again referring to FIG. 4, one or more connector outlets 50, 52 and 54 are*

provided on a conveniently accessible surface of housing 12. In this preferred

embodiment, a plurality of connectors are provided to give maximum flexibility to the

powering and use of the floating platform **as a source of power** *to one or more other*

battery-powered devices.", it is at least obvious if not inherent that the floating platform

10 could be used as a power source for charging a battery powered robot 100 located

on the bottom of the pool via an external power source 4 (figures 1, 2, & 4).

Regarding Applicant's other arguments; the Applicant is kindly invited to consider

the reasoning from the rejections above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jaime Figueroa whose telephone number is (571)270-

7620. The examiner can normally be reached on Monday-Friday, 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jaime Figueroa/
Examiner, Art Unit 3664
/KHOI TRAN/
Supervisory Patent Examiner, Art Unit 3664